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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/063,181	03/28/2002	Scott William Petrick	121713	4756

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EXAMINER

THOMAS, COURTNEY D

ART UNIT PAPER NUMBER

2882

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/063,181

Applicant(s)

PETRICK ET AL.

Examiner

Courtney Thomas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 16-28 is/are rejected.
- 7) ☒ Claim(s) 11-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 March 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6/21/02</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings were received on 3/21/2003. These drawings are acceptable.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-10 and 16-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Hsieh (U.S. Patent 5,331,682).

7. A method for processing data in a medical imaging system having a source of radiation and a detector that produces an output signal representing the sensed radiation, steps of said method comprising:
45 **acquiring a set of values which define a standard response of the detector to radiation;**
acquiring samples of the output signal periodically from said detector;
50 **receiving a plurality of samples of the output signal from said detector after extinction of radiation, which plurality of samples represents at least a portion of afterglow of the detector;**
fitting the plurality of samples to the set of values
55 **defining a standard response and deriving coefficients defining a degree of fit;**
determining, for a sample of the output signal, a compensation value derived from a coefficient defining a degree of fit;
60 **arithmetically combining the compensation value and the given sample to produce a compensated sample; and**
3. **reconstructing an image from compensated samples.**

4. **As per claim 1**, Hsieh discloses a method to minimize signal conversion time for a solid state detector panel of an X-ray system comprising the steps of: **a)** measuring a set of induced signal offsets caused by time varying charge retention associated with a detector panel during a phantom time segment prior to normal signal readout of the detector panel for a current image frame (column 3, lines 33-39; column 8, lines 50-53); **b)** generating a set of adjustment values in response to the set of induced signal offsets (column 8, lines 54-59); **c)** reading out subsets of signal values of the detector panel to a predetermined signal dynamic range as part of the normal signal readout of the detector panel in response to the set of adjustment values, thereby generating a set of normalized detector signals (column 8, lines 60-63).

5. **As per claims 2-9**, Hsieh discloses a wherein generating the set of adjustment values comprises indexing into at least one look-up-table and reading said adjustment values from the at least one look-up-table prior to said normal signal readout of said detector panel for the current image frame, said at least one look-up-table being previously generated based on, at least in part, a prior characterization of panel charge retention as a function of the subsets and frame rate and generating the set of adjustment values comprises computing the set of adjustment values prior to the normal signal readout of said detector panel for the current image frame, the computing being based on, at least in part, a prior characterization of panel charge retention as a function of the subsets and frame rate and wherein the reading out comprises adjusting a signal gain value and/or shifting a starting value of a signal conversion ramp, for each subset of the subsets of signal values based on the adjustment values, during a signal conversion time segment of the normal signal readout such that each of the set of normalized detector signals falls within the pre-

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determined signal dynamic range for the current image frame (see Abstract; column 3, lines 65-68; column 4, lines 37-48, 56-64; column 5 - column 6, line 68).

6. As per claims 10, 16-20 and 21-28, Hsieh discloses an X-ray apparatus comprising: an X-ray tube for generating X-ray signals (13); a solid state detector module (14) responsive the X-ray signals; a scintillator converting X-ray signals to photon signals (column 1, lines 58-62); an image processing module (25); an array of photodiode/field-effect-transistor pairs abutting the scintillator and being responsive to the photon signals to affect charge build-up in said array and read-out electronics to read a current row of the array to be read, the readout electronics being connected to columns of the array and being responsive to the charge build-up to generate a set of normalized detector signals such that the set of normalized detector signals is adjusted for offsets in signal strength, whether positive or negative, caused by temporal row-to-row variations in charge retention in the array (see Abstract; Figs 1, 2, and 4 not shown above and columns 1 and 2; column 3, lines 3-39).

Allowable Subject Matter

7. Claims 11-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. As per claim 11 and dependent claims 12-15, the examiner found no reference in the prior art that disclosed or made obvious an X-ray system wherein the read-out electronics comprises:

9. a) a set of signal integrator/sample-and-hold circuits responsive to a signal value and changes in the charge build-up along columns of the array to generate a corresponding set of

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integrated signals being proportional to the changes in charge build-up for each of the photodiode/field-effect-transistor pairs in the current row being read out;

10. **b)** a digital counter responsive to a clock signal and a row variable offset value to generate an offset signal conversion ramp for the current row being read out and wherein the offset signal conversion ramp is derived from a single, predetermined signal conversion ramp that is common for all rows to be read out;

11. **c)** a corresponding set of comparators responsive to the corresponding set of integrated signals and to the offset signal conversion ramp to generate a corresponding set of latch signals when the corresponding set of integrated signals is equal to or greater than a current level of the offset signal conversion ramp for the current row being read out; and

12. **d)** a corresponding set of data registers responsive to the offset signal conversion ramp and the corresponding set of latch signals to capture the set of normalized detector signals in the corresponding set of data registers for the current row being read out.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Courtney Thomas whose telephone number is (571) 272-2496.

The examiner can normally be reached on M - F (9 am - 5 pm).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272 2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CT

Courtney Thomas



EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER